

NEW FOREST NURSERIES: HARVESTING MORE THAN JUST FRUIT

An Important Freshwater Area

As you may know, the New Forest is one of the best of the UK's Important Freshwater Areas. Supporting more than two thirds of all of the UK's freshwater species and more than a third of the UK's rarest plants and invertebrates – species which have been identified as declining significantly to a level of conservation concern in the last 50 years. We are also fortunate enough to have alongside this, internationally important coastal and marine habitats.

Water quality plays an important role in freshwater and coastal biodiversity



High status, clean, unpolluted water explains why we have the wonderful array of rare freshwater plants and wildlife in the core of the Forest – species now lost from other landscapes across the country.

As the streams and rivers move through the catchments, the land changes from Open Forest to a multitude of uses; Forestry, agriculture, horticulture, horse paddocks, campsites, towns and

villages, and roads. As with all intensified land use, it is inevitable that nutrients, chemicals and sediments end up in local watercourses. This process, known as diffuse pollution, occurs when potentially polluting substances from land use activities, leach into surface water and ground water through either surface run off or soil infiltration.

Some operations can introduce damaging levels of nutrients in a single event. But, much of the time, individually, these occurrences may have a small but tolerable effect on the water environment, yet collectively, at a catchment scale, they can result in major changes in water quality resulting in loss of species and risks to human health.

In a high quality landscape, like the New Forest, it is perhaps easier to pinpoint the individual small sources of nutrients and find innovative solutions to tackle diffuse pollution at the landscape scale critical to support nature recovery and adaptation to climate change.

The Catchment Partnership - identifying and addressing diffuse pollution

Much of the work of the Catchment Partnership (joint hosted by National Park Authority and Freshwater habitats Trust) involves working with landowners, businesses and communities to identify any sources of diffuse pollution that are, or have the potential to impact on the water environment. Working closely with the Environment Agency and Natural England local teams, using data from their statutory monitoring along with our own walkover surveys it has been possible to target areas and sectors where we can make easy wins towards a cleaner water environment. In this article, we look at how innovative solutions are being used to address multiple challenges for businesses; namely the capture of rainwater to prevent unnecessary nutrient enriched run off entering the highly sensitive fresh and coastal water environment of the New Forest.

Business sustainability and environmental protection through water resource management

Over the past several years landowners and businesses have been seeking advice on water resource and water quality management and have begun to consider how their land management practices and business could be part of a package of work to reduce, reuse and recycle water - saving water, preventing run off and reducing pressure on the water environment.

The horticulture and soft fruits industry are an important part of the New Forest's economy; businesses have been eager to engage, to seek water resource advice and to find solutions to upgrade and future proof how they use water.

As part of the Living Waters project (a sub-project within the NPAs Our Past, Our Future project funded by the National Heritage Lottery Fund and Environment Agency), trial water management measures were installed onto existing infrastructure to capture rainwater and feed into useful water provision systems – either for irrigation or as drinking water for livestock. Building on the success of these trials, Freshwater Habitats Trust with funding from the Environment Agency's Water Environment Improvement Fund (WEIF), has now delivered a project working closely with New Forest soft fruit and plant nurseries at key locations around the Forest.



Left photo: downpipes make the most of the roof space. Pipes carry roof water to newly installed drain leading to new underground collection pit (right photo) and harvesting tank (below photo), which is connected to the irrigation system.



The interventions are clever in design:

- Guttering and downpipes collect rainwater from nursery roofs (polytunnels, greenhouses and sheds).
- Water carried along pipes reaches an underground capture pit fitted with a pump, which on average can deal with pumping 500 litres per minute.
- The water is then pumped into large water tanks connected to existing irrigation systems providing water for plants and soft fruit.
- A pressure valve fitted ensures rainwater is prioritised over mains supply. This ensures that in very dry weather the mains supply switches on. This system maximises the use of harvested rainwater.

Less reliance on nutrient rich mains water and less runoff into the sensitive fresh and coastal water environments in and around the National Park.

Fairweather's Nursery – plant production with a strong environmental ethos

Patrick Fairweather, owner of Fairweather's Nursery, based in Beaulieu, was keen to join the project. The nursery is located on high ground above the Beaulieu River, so the management of water on site is critical to preventing even small amounts of run off from entering the Hartford stream and later into the Beaulieu estuary. Patrick spoke to us about the importance of increasing business sustainability in balance with nature:

Plants are a huge benefit to people and their wellbeing, and it's important for our customers to know our plants come with green credentials. We are striving towards best practice environmental standards and reusing, reducing and recycling is at the heart of what we do. As well as being peat free, 80% of our production is under a capillary sand bed regime. Without the need for sprinklers, the plants sit in a contained sand reservoir. The plants draw from the sand and into the pot – they take what they need and no water is wasted. The benefits of such a regime include reduced run off, reduced water consumption, and reduced humidity requiring minimal chemical treatment.

We have gratefully received funding from the Environment Agencies WEIF for a water harvesting system, which captures rain and reduces run off from areas of hard standing and roofs. As well as the environmental benefits we are also seeing small signs in the reduction of mains water supply. This is not conclusive and we will be monitoring this over the longer term.

Over the years during heavy rainfall neighbouring land floods. The harvesting system installed on site has alleviated localised flooding. Harvesting water is a great way for businesses and landowners to adapt to the changing climate, protecting watercourses and utilising a resource so readily available with the right infrastructure in place.

Putting water to good use ticks many boxes and we would recommend this type of system to other similar businesses. Our careful management of water on site will have a positive impact downstream.



Innovative ideas implemented on site are having a positive impact on water quality further downstream. The orange pipe transports water from roof surfaces to a 216,000l tank which then feeds into the existing irrigation system on site.



Lavender is grown under a capillary sand bed regime shown above. Water seeps through the sand bed providing for the plants. Using this system mosses and liverworts are kept at bay naturally and reduces the need for the usual chemical controls.



Timber logs from the estate have been utilised to create a secure leaky dam structure in channel to intercept nutrients and sediments. These installations also slow the flow backing up water increasing the potential for natural processes.

Project Summary

Over the course of the project, Freshwater Habitats Trust has provided expert advice to five nurseries and soft fruit producers and installed rainwater-harvesting systems at four. Through this project, these businesses, located across three catchments, Beaulieu, Lymington and Sowley, have increased their water storage capacity from 120,000 litres to 570,000 litres.

The project has also funded leaky dams, an in channel structure using wood to slow the flow of water and reduce nutrients entering Sowley Pond, a Special Protection Area, Ramsar site and a Water Framework Directive (WFD) water body.

Initially a project to tackle water quality, there have been multiple benefits including:

- Reduced nutrient input across three catchments contributing towards enhancement of WFD water bodies and Protected Areas which were failing or at risk, under statutory monitoring.
- Natural flood management and adaptation to climate change—reduction in surface water run off into the water environment..
- Relationship building within the industry and raising awareness of issues and opportunities to encourage further investment from business and sharing of ideas and best practice.
- Connecting business owners to water resource management companies to promote future working, further improve water quality and reduce water waste.

Although this project has finished, the Catchment Partnership and Environment Agency have come a long way since its inception. A project like this has many benefits and outcomes and we aspire to continue to build on the work that has been achieved so far, as a model to inspire and encourage other land and business owners across the New Forest Catchments.